Museum Visitors Care about Everything! Using Best-Worst Scaling for Strategic Focus

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Abstract

Museums face similar challenges to those encountered by managers of fast-moving consumer goods. For instance, both must determine what things (factors) attract consumers (visitors) to their products (museums). Several methodologies have been applied in this area to find out what matters to visitors. In general, these methods produce lengthy lists and do not discriminate between items in terms of relative positioning. In this paper, we explore the use of best-worst scaling (BWS) to reduce and to quantify factors in their order of impact or importance. BWS is simple to use, producing results that are easy to communicate to non-technical audiences, fostering links between research and actionable implications. We use an example with museum visitors to provide insights into the applicability of this technique to the arts sector, its limitations and areas for further research.

Introduction

Managers need to understand which factors are important to consumers so they can deliver better products or effectively focus communications. For museums, this also applies: managers must understand what is valued by visitors to better focus marketing strategies. However, the variability of skills in relation to qualitative and quantitative data collection and analysis within museums, particularly in Australia, suggests that the field is still relatively immature (Reussner, 2003). In addition, traditional research methods used to identify key drivers of importance are not without their own set of drawbacks. These methods include qualitative techniques (e.g., focus groups, depth interviews, observational studies, verbal protocols) and quantitative techniques embedded within a survey task (e.g. rating scales, ranking tasks, constant-sum scales).

This paper discusses best-worst scaling (BWS), a relatively new quantitative technique that researchers in the museum sector can use to identify factors that are important to their consumers (i.e. museum visitors). We discuss the advantages of using BWS over traditional methods used to elicit importance and provide a demonstration of how BWS can be applied in arts management.

Literature Review

The traditional view is that successful differentiation is associated with offering something that is *important*, *relevant* and *of value* to consumers (Cahill, 1996; Porter, 1985; Rogers 1995). While there may be some benefits to offering meaningless features (Carpenter, Glazer and Nakamoto, 1994; Broniarczyk and Gershoff, 1997), sustainable competitive advantage generally requires a focus on what has meaning to consumers (Lawfer, 2003; 2004). Yet, managers often are unclear about the factors that are considered by consumers when they make a choice. In fact, consumers may use many factors and decision rules to make decisions (Bettman, Luce and Payne, 1988).

Most consumer choices involve trade-offs, giving up some things to obtain others (Fishbein and Azjen, 1975). For example, consumers may choose to visit one museum due to its exciting and interactive exhibits even though it has a high entry price and is crowded. Implicitly, this suggests that consumers use a compensatory decision-making strategy such that positive product factors can compensate for negative ones (Craig-Lees, Joy and Browne, 1995). So, we can think of museums as fast-moving consumer goods. The consumers of those goods consider 'exhibitions', 'entry price', 'tours', 'business hours', etc. to evaluate museum attractiveness. Consumers can compare one museum to another or to a competing activity (e.g., going to a beach; staying at home) on a set of salient factors to determine its overall value (utility) (East, 1997). The need for trade-offs is driven by museums themselves; maximisation (the perfect museum) is desired by visitors, but it is not possible (Sheth, Newman and Gross, 1991).

If we ask consumers how important each factor of a product is one at a time, they have every incentive to indicate that *everything* matters (Carson, Groves and Machina, 2000). In the case of museums, visitors want to go to museums with "exciting exhibitions", "free entry", "lots of activities for children", "free parking", etc. We argue that such information provides little insight to managers because museums cannot offer all these things. Knowing that "everything matters" to consumers does not help organisations understand where to focus their strategic efforts. Indeed, organisations must make trade-offs like consumers, and they must choose to focus on one factor over another.

To gain a broad understanding of factor importance, organisations must first identify a comprehensive list of factors. Theory or prior research can help, but this is only part of the research task. Researchers require more information to determine the *relative* benefit of each factor. Below we review a range of methods used to determine the factors that matter to individuals that previously have been used in the arts sector.

Qualitative reduction methods

Qualitative methods, such as focus groups, in-depth interviews and observational techniques, have been used in prior work to identify factors that underlie museum attendance. For example, Bitgood (2006) developed an observational paradigm that used the general value principle (i.e., cost vs. benefits) to account for trade-offs visitors use in moving around an exhibition. On a more sensory level, Joy and Sherry (2003) used observation and in-depth interviews to determine visitors' visceral and embodied imaginative responses to exhibitions. Thyne (2000) used content analysis of interviews and a laddering technique to determine factors that influence museum visitation. While Thyne's work indicated a series of influential factors, determining *how* influential these are remains elusive. These research studies and others (Serrell, 1993; Wiggins, 2004; Debenedetti, 2003; Goulding, 2000) identify a range of factors, but do not isolate nor measure the key factors that influence museum visitation. Further, several issues threaten the validity of verbal reports, such as 1) task effects - asking individuals to discuss their thoughts out loud may distract from the primary task (Biehal and Chakravarti, 1989); 2) impression management effects - knowing that they have to verbalise their thought process, individuals may plan and edit what they want to say to appear more rational (Biehal and Chakravarti, 1989); and 3) individuals may not recognise their thought processes or be able to verbalise these.

Quantitative reduction methods

Traditionally, survey questions have been designed to measure factor importance by using

ranking, constant sum and rating scales, but there has been little use of experimental design techniques or other novel ways to understand what drives museum visitor choices (Close and Donovan, 1998; Burton, 2003; Burton and Scott, 2003). Survey questions have been used that allow comparability over time and perhaps between institutions, but these primarily focus on demographics; visitation frequency, satisfaction, and summative evaluation of exhibitions (Kirchberg, 1996; Museums Australia, 2004; Reussner, 2003). Ranking and constant sum scales can be difficult for respondents to complete if they must rank or allocate points across many factors. Consequently, test-retest reliability tends to be low (Cohen and Orme, 2004). Single-item rating scales are problematic because these scales do not measure relative importance and respondents may rate many (or even all) factors as important because there is no disincentive not to do so (Carson, Groves and Machina, 2000). There also are issues as to how individuals differ in subjective values associated with each scale element, which may be influenced by cultural norms (Hui and Triandis, 1989).

Repertory grid analysis (RGA) has been used to identify the strength of museum brands (Caldwell, 2000; Caldwell and Coshall, 2002) suggesting that people make choices based on analogous associations. While RGA allows individuals to direct the way in which associations are determined, it does not have a predictive dimension. Determining choice in relation to museum visitation is based on interest, tastes and motives - an area that falls outside of RGA but is the basis of BWS.

Research using qualitative and quantitative methodologies suggest that visitors use several dimensions to assess museum attractiveness, such as social factors, identity development and consumption of experiences (Falk and Dierking, 1992; Falk, 2006; Bourgeon-Renault *et al.*, 2006); psychographic factors associated with visitor segmentation and other leisure consumption (Clopton, Stoddard and Dave, 2006); and, artistic/aesthetic, emotional and educational factors (Boorsma, 2006). Evaluating museums on a number of dimensions suggests that visitors may rate dimensions with equal importance; thus the discrimination between salient factors merits further research.

A search for new methodologies for arts management

Our knowledge of visitors remains relatively constant, and, periodically, the same knowledge gaps emerge. Of the variety of factors identified to underlie visitation it is difficult to know which ones singly or in combination matter most to visitors in the consumption of cultural goods and services (Hood, 1992; Kelly, 2004; Burton, Louviere and Young, 2004). Previous methods for this purpose have two problems: 1) while able to determine a list of relevant items, these lists often are *too long*; and 2) researchers often are unable to *discriminate* between items. Thus, we need a method that allows reduction and discrimination across items in a way that is easy for researchers to implement; easy for respondents to complete; and provides easy communication of actionable insights to managers. BWS is an efficient, rigorous way to understand the *relative* importance of a *large* set of factors influencing decisions.

Best-Worst Scaling (BWS) Methodology

BWS theory quantifies how people choose the best and worst items in a set. Sets may consist of different museums (the items), whereby individuals indicate which museums perform best and worst on a particular latent dimension (e.g. special exhibitions). Alternatively, sets may consist of factors, whereby individuals select the factors that matters most/least to them (e.g.,

special exhibitions vs. free parking). In BWS experiments, subjects simply indicate the best and worst options in a set. BWS also measures factor importance on a comparable scale (Lancsar, Louviere and Flynn, 2007), as discussed by Marley and Louviere (2005), who provide formal proofs of measurement and model properties. BWS is also called 'maximum difference scaling,' as the items chosen best and worst are the two items that are furthest apart on each consumer's latent scale.

Changes in leisure consumption patterns and public policy environments indicate that museums may need to adopt more rigorous, novel and perhaps heterogeneous audience development techniques to compete successfully (Burton and Scott, 2003; Burton, 2003, Burton, Louviere and Young, 2004). BWS has been applied in several research areas including public polling (Finn and Louviere, 1992); health economics (Lancsar, Louviere and Flynn, 2007); and corporate social responsibility/ethical research (Auger, Devinney and Louviere, 2007). Although there has been some controversy in applying market research methods to arts marketing (Colbert, 2003; Butler, 2000; Fillis and Rentschler 2005; Fillis, 2004), we now demonstrate the value of applying BWS in this area.

Description of current study

Empirical research was conducted in partnership with six major Australian museums. Qualitative research, comprising 24 to 30 face-to-face interviews conducted in each of the six partner museums with museum visitors and subsequent workshops with representatives from each museum produced a list of 64 potential factors. Conducting workshops with the directors and staff of the six museums allowed us to eliminate factors that would be impossible to include as potential factors on the basis of government or workplace constraints. To inform operational decisions by museum management, we needed to reduce this large number of factors, and BWS is well suited for that purpose.

A balanced incomplete block design (BIBD) was used to construct 18 subsets of the 64 factors, with 16 blocks of size 8. In other words, each respondent completed 18 BWS tasks, evaluating just eight (of 64 possible) factors at a time. In each subset respondents indicated their choice of 'most', 'second most', 'least' and 'second least' important factors in their decision to visit museums. Thus, the BWS tasks required respondents to trade-off factors, unlike conventional rating tasks in which respondents can rate each factor as 'very important'. Asking additional BWS questions provides much more information about the relative ranking of factors allowing one to more precisely estimate the relative importance of each factor. BWS forces individuals to tradeoff the factors against one another, whereas a more traditional task involving rating the importance of factors one-at-a-time does not force tradeoffs, which is why one frequently finds that many factors appear to be important. Respondent fatigue is not expected to influence the quality of our results; previous research suggests little evidence of increasing random error due to respondent fatigue (Johnson and Orme, 1996).

The design was operationalised online using SurveyEngine software. We used the PureProfile online panel as a sampling frame, screening respondents based on museum visitation history and intention. After eliminating incomplete responses and withdrawals, the final sample size was 320 respondents.

Findings and Discussion

To calculate BWS scores for each factor, the frequency with which items were chosen as

'best' and 'worst' were calculated, and the square root of the ratio of these counts was used as the measure of importance, as discussed by Flynn *et al*. (2006). Scores were highly related to measures derived from more sophisticated multinomial logit analysis (R^2=0.95).

The BWS scores for each factor are simple to interpret. Scores have a lower bound of zero, implying a factor does not matter at all, and those with higher scores are more important. The scores have ratio scale properties, so a factor with a score of two is twice as important as a factor with a score of one. For example, the top scoring factor was 'friendly, helpful and informed staff' (1.96); the median scoring factor was 'family packages for school holidays' (1.03) and the lowest scoring and least important factor was 'availability of alcohol' (0.41). This implies that the presence of 'friendly, helpful and informed staff' is approximately four times more important than 'availability of alcohol' (1.96/0.41) and twice as important as 'family packages for school holidays' (1.96/1.03) to visitors as a factor underlying museum attractiveness.

We have discussed how managers can use BWS to discriminate between items and examine relative importance, however, managers can use BWS to reduce factors and concentrate strategic focus and there are several ways to do this. For example, managers could focus on an arbitrary number of the highest scoring factors (e.g., "Top 10"); they can sort the factors from highest to lowest, graph each factor by its score and visually see if importance jumps (steps) considerably ("cut-off points"); or, they can identify cut-offs by using confidence intervals for scores, eliminating all factors below the cut-off levels. We applied the later approach to our BWS data, which identified 25 factors as significantly important. Managerially, BWS allows strategic actions to be evaluated, and in our case, it focuses on actions that can be undertaken to attract visitors to museums.

Conclusion and Areas for Future Research

BWS is not without limitations. Researchers who use BWS to reduce and discriminate between a large number of factors must ensure that each factor is unambiguous and meaningful. This can be difficult, particularly in categories that involve experience-based factors (e.g. "interactivity for children") where it may be challenging to convey a factor only with words. One also might expect emotions and perceptions of 'fun' to factor into evaluations (Holbrook and Hirschman, 1982). A limitation of our study is that we held these factors constant. To ensure that BWS results are meaningful outside an experiment, one must be able to realistically represent the true decision environment (Cooksey, 2007).

This research is supported by a joint partnership between the Australian Research Council and six major Australian museums. The results of this research project are of commercial value and while we are excited about the results, we are unable to fully disclose specific findings. Instead, this paper demonstrates how a relatively new and novel quantitative technique (BWS) could be used in the arts sector to determine relative factor importance. Our study focused on determining what factors matter to visitors. However as stated in the paper, BWS could also be used to understand how visitors perceive competing museums (i.e. which museum performs best – or worst – on particular dimensions). To our knowledge, this is the first BWS application to the arts sector, and our study demonstrates the ease with which the method can be implemented and the extent of its strategic value to museums.

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